



**National
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Documentation Sheet

Document Classification
Restricted

Title : Development of polymer-based quenchants for heat treatment of aircraft alloys

Document No. PD MT 8907

Date of issue: Mar 1989

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Contents Pages 9

Division : Materials Science

No. of copies: 12

External participation : ---

NAL Project No.
MT-9-000

Sponsor : ---

Sponsor's Project No.

Approval : Head, Materials Science Division

Remarks : ---

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Keywords : Aircraft alloys, Quenching, Heat treatment, Inverse solubility

Abstract : A few water-based polymer formulations with precipitation temperature of 74°C have been arrived at for the heat treatment of Al- based Aircraft alloys. Two of them were prepared in bulk and tested as quenching media for L-73 sheets and L-65 bars/angles by the Heat Treatment Section of the HAL, Bangalore. While the mechanical properties of the quenched alloys were acceptable, the distortion of the sheets quenched in NAL formulations was more. The latter was assigned by the HAL engineers to the lower viscosity of our formulations. This has been improved later and some quenching studies made in NAL. Further heat treatment, tests, etc. and improvement are to be done in co-operation with the HAL engineers and funding. The formulations can replace the presently used UCON Quenchant A, imported from the UNION CARBIDE CORPORATION, U.S.A.